

## A NEW SPECIES OF THE GENUS *HERMANNIELLA* (ORIBATIDA, HERMANNIELLIDAE) FROM CHINA

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**Abstract** A new species of the genus *Hermaniella* Berlese, 1908, *H. zhengi* sp. nov., is described from China. The type specimens are deposited in the National Zoological Museum of China, Institute of Zoology, Chinese Academy of Sciences, Beijing.

**Key words** Oribatida, Hermannellidae, *Hermaniella*, new species, China.

### 1 Introduction

The genus *Hermaniella* Berlese, 1908 is characterized by the large tube-like opening of the opisthonotal gland projecting on the sides of the hysterosoma, prodorsum with a longitudinal ridge extended forward on each side, notogaster covered with tritonymphal exuviae, tritonymphal seta  $f_1$  on notogaster may different from other tritonymphal setae in shape and size, bothridia situated close to lateral margins of prodorsum (Sitnikova, 1973).

Up to now, 35 species and 3 subspecies of *Hermaniella* were described all over the world (Subías, 2009), among them, 5 species were recorded in China (Chen *et al.*, 2010): *H. aristosa* Aoki, 1965, *H. dolosa* Grandjean, 1931, *H. dubinini* Sitnikova, 1973, *H. grandis* Sitnikova, 1973 and *H. punctulata* Berlese, 1908.

While examining the specimens collected from Tibet, China, a new species of this genus was identified and described in present paper.

### 2 Material and Methods

Measurements and descriptions are based on specimens mounted in temporary cavity slides and on permanent slides that were studied using a standard light microscope equipped with a drawing attachment.

Terminology generally follows Grandjean (1962a, b). The unit of measurement is micrometer ( $\mu\text{m}$ ).

Specimens for scanning electron microscopy were cleaned with brush in alcohol and observed under the low vacuum mode of FEI Quanta<sup>TM</sup> 450.

Type specimens are deposited in the National Zoological Museum of China, Institute of Zoology, Chinese Academy of Sciences, Beijing.

### 3 Taxonomy

***Hermaniella zhengi* sp. nov.** (Figs 1 – 16)

*H. dubinini* Sitnikova, 1973; Wang *et al.*, 2001: 402 (misidentified, part).

**Measurements.** Body length 830 – 960, width 590 – 670, prodorsum length 260 – 300, notogaster length 600 – 700, setae length and distance (one paratype): *ro* 110, *le* 190, *in* 230, *ss* 180, *ex* 25, *ro-ro* 105, *le-le* 90, *in-in* 95, *ss-ss* 190.

Colour brown.

Prodorsum broad. Rostrum deeply incised (Figs 1, 11 – 12). Prodorsum with a longitudinal ridge extended forward and beyond insertion of lamellar seta on each side. Rostral setae slightly barbed outer surface, strongly attenuating toward tip, curved medially (Fig. 3). Lamellar setae slightly barbed, long, attenuating toward tip. Interlamellar setae similar in form to lamellar setae, longer than lamellar setae and sensillus (Figs 1, 7, 10). Bothridia situated near lateral margins of prodorsum. Sensillus barbed and tip not swollen (Figs 1, 8, 11). Exobothridial setae situated beyond bothridia, bristle and smooth, unobservable in dorsal view (Fig. 5).

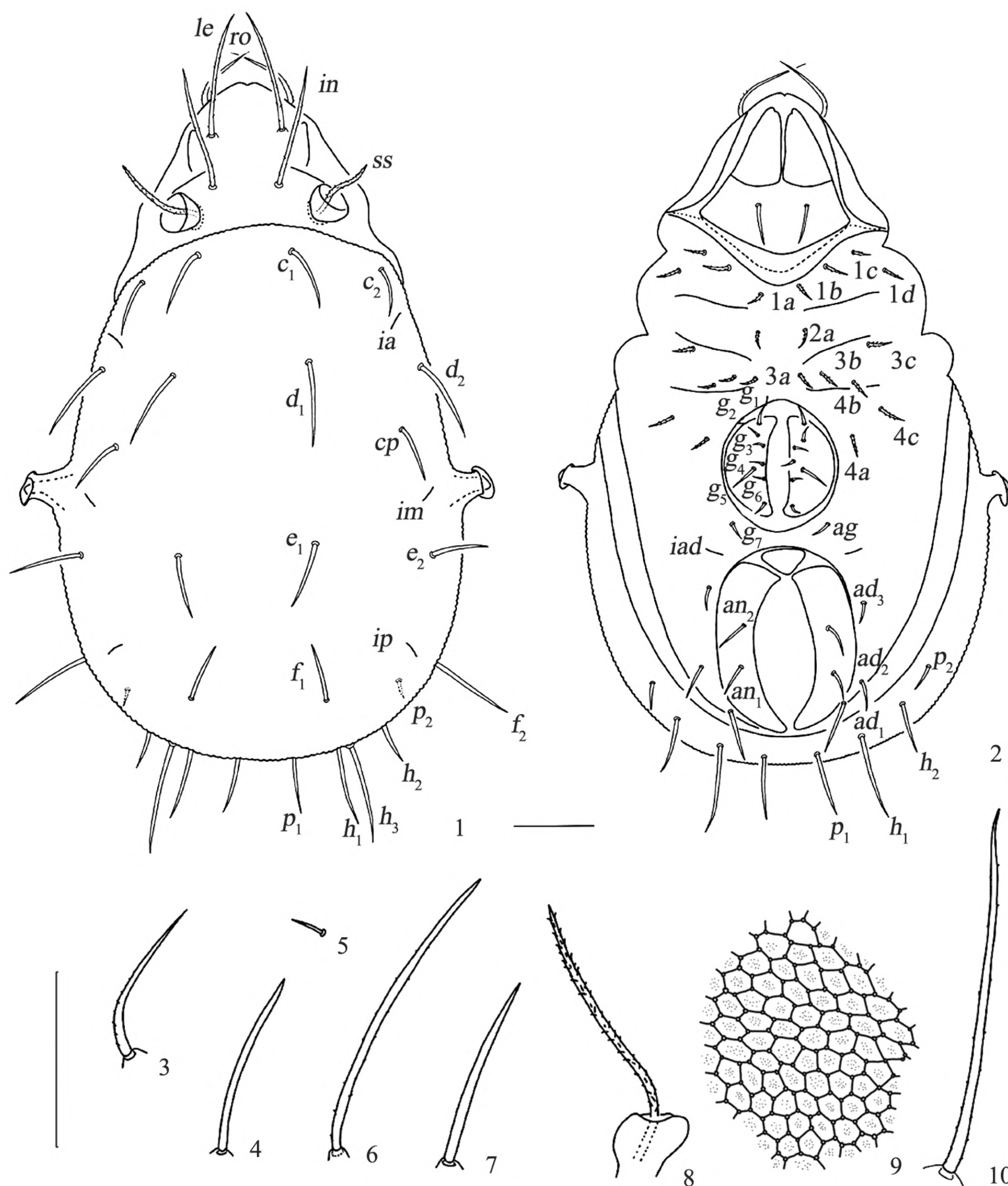
Notogaster oval shaped, humeral region near insertion of seta  $c_2$  on each side somewhat projecting (Fig. 1). Notogaster covered with tritonymphal exuviae. Beneath exuviae, notogastral integument with round light points, six points (sometimes five or seven) connected by threads to hexagon. Many small points scattered inside hexagons (Figs 9, 14). Hexagons around insertions of notogastral setae irregularly shaped. 14 pairs of notogastral setae, smooth and attenuated toward tip. Among notogastral setae, ten pairs belonging to tritonymph,  $f_1$  slightly thicker than other tritonymphal setae, curved forward

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Figs 1–10. *Hermannella zhengi* sp. nov. 1. Dorsal view. 2. Ventral view. 3. *ro*. 4. *e*<sub>1</sub>. 5. *ex*. 6. *le*. 7. *f*<sub>1</sub>. 8. *ss*. 9. Sculpture on notogaster among *d*<sub>1</sub> and *e*<sub>1</sub>. 10. *in*. Scale bars: 1–2 = 100  $\mu$ m, 3–10 = 50  $\mu$ m.

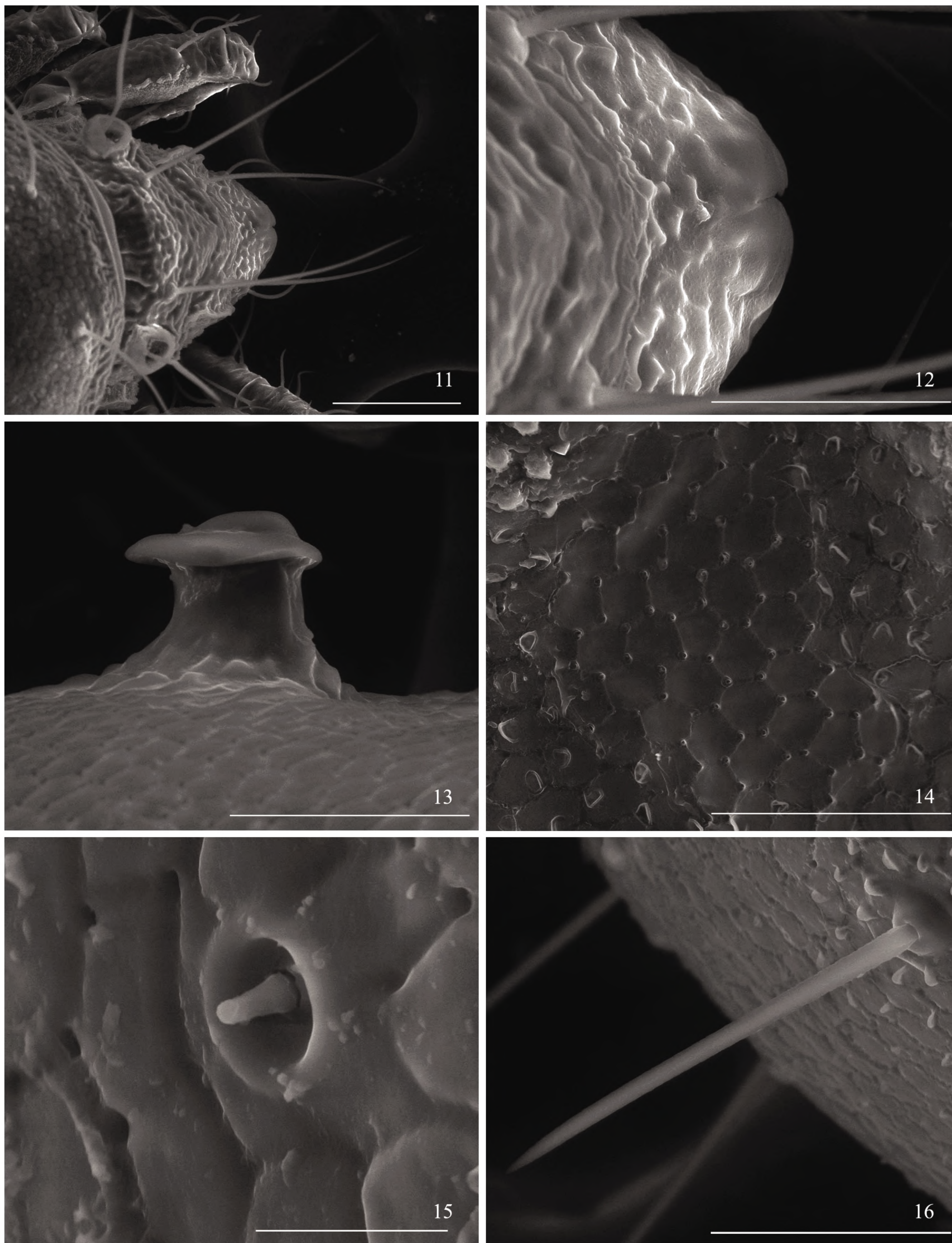
(Figs 1, 7), *h*<sub>3</sub> long. Four pairs of setae on posterior margin of notogaster belonging to adult, *h*<sub>1</sub> longest, *p*<sub>2</sub> shortest (Figs 1–2). Adult seta beneath tritonymphal exuviae strongly reduced, only base part short stick-shaped in cavity of insertion (Fig. 15). Lyrifissure *ia*, *im*, *ip* observable.

Epimeral setae spiniform and slightly barbed. Epimeral setation: 4-1-3-3 (Fig. 2). Seven pairs of genital setae smooth, of which four arranged along inner margins of genital plates and others (*g*<sub>1</sub>, *g*<sub>2</sub>, *g*<sub>3</sub>) slightly laterally, *g*<sub>3</sub> longest. Lyrifissure *iad* situated between genital and anal openings. Two pairs of anal setae and three pairs of adanal setae present, *ad*<sub>1</sub> longer than *ad*<sub>2</sub> and *ad*<sub>3</sub>.

Holotype adult, (CJ-01-61, in alcohol), China, Tibet, Bomi, Zhamo, from moss, 2 900 m, 23 Aug. 2001. Paratypes: one adult, (CJ-01-52, on

permanent slide), China, Tibet, Bomi, Zhamo, from rotten tree, 2 950 m, 23 Aug. 2001; one adult, (CJ-01-59, on permanent slide), China, Tibet, Bomi, Zhamo, from litter, 2 900 m, 23 Aug. 2001; five adults (CJ-01-60, two on permanent slides, three in alcohol), with same data as CJ-01-59; four adults, (CJ-01-61, one on permanent slide, three in alcohol), with same data as holotype; one adult, (CJ-01-30, on permanent slide), China, Tibet, Qamdo, Zhujiola Mountain, from moss, 4 170 m, 16 Aug. 2001; 14 adults (CJ-01-33, on permanent slides), China, Tibet, Leiwuqi, from rotten tree of cedar, 3 850 m, 17 Aug. 2001; one adult, (CJ-01-67, on permanent slide), China, Tibet, Nyingchi, Bayi, litter under broad-leaved tree, 3 150 m, 25 Aug. 2001, all above specimens were collected by CHEN Jun; two adults (No. 10, on permanent





Figs 11 – 16. *Hermanniella zhengi* sp. nov. 11. Dorsal view of prodorsum. 12. Dorsal view of rostrum. 13. Opening of opisthonotal gland. 14. Sculpture on notogaster among  $d_1$  and  $e_1$ . 15. Adult notogastral seta beneath tritonymphal exuviae. 16. Seta  $h_3$ . Scale bars: 11 = 100  $\mu\text{m}$ , 12 – 14, 16 = 50  $\mu\text{m}$ , 15 = 10  $\mu\text{m}$ .

slides), China, Tibet, Shergyla Mountain, from moss on dead trunk of *Abies*, 28 Sep. 1997, collected by SOLHOY Torstein, SHEN Jing and XU Ru-Mei; two adults (4 Sep. 1990, on permanent slides), China, Gansu, Jonê, Dayu, 2 600 m, 4 Sep. 1990.

Remarks. The new species is similar to *H. dubinini* Sitnikova, 1973, *H. microsetosa* Hammer, 1966 and *H. longisetosa* Hammer, 1966 with the round light points sculpture on notogastral integument, but could

be distinguished from them by rostrum incised medially and notogastral setae  $f_1$  curved forward, as well as following diagnosis: in new species, rostral setae slightly barbed outer surface, lamellar setae and interlamellar setae attenuating apically, tip of sensillus not swollen, slightly barbed, points sculpture on notogaster connected by threads to hexagons, 14 pairs of setae on notogaster, posterior margin of notogaster with four pairs of adult setae, smooth and similar in



form to tritonymphal notogastral setae, length of the longest notogastral seta just equal to quarter of length of notogaster. In *H. dubinini* Sitnikova, 1973, lamellar setae and interlamellar setae with bluntly rounded apices, tip of sensillus swollen, apically weakly barbed, points sculpture on notogaster without connected threads, posterior margin of notogaster with five pairs of adult setae, weakly barbed. In *H. microsetosa* Hammer, 1966, rostral setae smooth, sculpture on notogaster consisted of numerous deep and small points arranged rather regularly in oblique row, points not connected by threads to hexagons. In *H. longisetosa* Hammer, 1966, rostral setae smooth, points on notogaster arranged irregularly and distance between them varying much, 16 pairs of notogastral setae present, among them, four pairs on posterior margin of notogaster flagelliform and long, length of the longest seta equal to about half of length of notogaster.

With comparing the morphological characteristics of different development stages of *Sacculobates horologiorum* Grandjean, 1962, Grandjean concluded that there should be three pairs of seta on epimeral plate IV in the family Hermannelliidae (usually epimeral seta 4b located on epimeral plate III in adult) (Grandjean, 1962a). In present study, we accepted this nomenclature and regarded the epimeral setation of *H. zhengi* is 4-1-3-3.

In 2001, Wang *et al.* reported *H. dubinini* Sitnikova, 1973 as a newly recorded species to China with 14 specimens from Shergyla Mountain, Tibet. After that, there is no any report of this species from China. While examining one specimens (No. 10) of the 14 specimens which was deposited in the Institute of Zoology, Chinese Academy of Sciences, we found that it should be identified as *H. zhengi* sp. nov. As

having not found other 13 specimens Wang *et al.* identified as *H. dubinini*, we could not confirm whether *H. dubinini* Sitnikova, 1973 occurs in China or not.

Distribution. China (Tibet, Gansu).

Etymology. This species is named in honor of Professor ZHENG Zhe-Min for his outstanding contribution to the systematic entomology.

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## 中国小赫甲螨属一新种记述（甲螨亚目，小赫甲螨科）\*

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**摘 要** 记述了采自我国西藏和甘肃的小赫甲螨属 1 新种，郑氏小赫甲螨 *Hermannella zhengi* sp. nov.。模式标本保存在中国科学院动物研究所国家动物博物馆。

**郑氏小赫甲螨，新种 *Hermannella zhengi* sp. nov.**（图 1 ~ 16）

新种以后背板背面小孔状花纹与杜氏小赫甲螨 *H. dubinini* Sitnikova, 1973、微毛小赫甲螨 *H. microsetosa*

Hammer, 1966、长毛小赫甲螨 *H. longisetosa* Hammer, 1966 相似，但新种以吻端有凹陷和后背板第 3 若螨毛  $f_3$  指向前而不同于这 3 个已知种。除此之外，新种与杜氏小赫甲螨的区别为：新种梁毛与梁间毛端部尖，感器端部无膨大，被稀疏小刺，后背板背面小孔状花纹的 6 个点（有时为 5 或 7 个）间由细线连接成规则多边形，后缘成体毛 4 对，光滑；杜氏小赫甲螨梁毛和梁间毛端部钝圆，感器端部被小刺且略膨大，后背板背面花纹为无细线相连的不规则分散小孔，后缘

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5 对成体毛，略被小刺。新种与微毛小赫甲螨的区别为：新种吻毛外表面被小刺，后背板背面花纹为大小均一的小孔，小孔之间有细线连成规则多边形；微毛小赫甲螨吻毛光滑，后背板上的小孔状花纹排列规则，成行但不连接成多边形。新种与长毛小赫甲螨的区别为：新种吻毛外表面被小刺，后背板背面小孔间距均一，后背板 14 对毛，后背板后缘成体毛形似第 3 若螨毛，后背板上最长毛长度为后背板长度的  $1/4$ ；长毛小赫甲螨吻毛光滑，后背板小孔间距变化很大，后背板 16 对毛，后背板后缘毛呈鞭状，和第 3 若螨毛区别很大，后背板最长毛长度可达后背板长度的  $1/2$ 。

王慧英等 2001 年将采自我国西藏色季拉山的 14 头标本鉴定为杜氏小赫甲螨 *H. dubinini* Sitnikova, 1973，并作为我国新纪录种进行了报道。在本研究中，作者检视了其中的 1 头标本 (No. 10)，发现其应为郑氏小赫甲螨 *H. zhengi* sp. nov.。由于未检视其它 13 头标本，所以目前不能否定杜氏小赫甲螨 *H. dubinini* Sitnikova, 1973 在我国有分布。

正模，(CJ-01-61，酒精浸泡)，西藏波密扎木，苔藓，

**关键词** 甲螨亚目，小赫甲螨科，小赫甲螨属，新种，中国。  
**中图分类号** Q959.226

2 900 m, 2001-08-23。副模：1 头 (CJ-01-52，玻片)，西藏波密扎木，朽木，2 950 m, 2001-08-23；1 头 (CJ-01-59，玻片)，西藏波密扎木，腐殖土，2 900 m, 2001-08-23；5 头 (CJ-01-60，2 头玻片，3 头酒精浸泡)，信息同 CJ-01-59；4 头 (CJ-01-61，1 头玻片，3 头酒精浸泡)，信息同正模；1 头 (CJ-01-30，玻片)，西藏昌都珠角拉山，苔藓，4 170 m, 2001-08-16；14 头 (CJ-01-33，玻片，酒精浸泡)，西藏类乌齐，杉树朽木桩，3 850 m, 2001-08-17；1 头 (CJ-01-67，玻片)，西藏林芝八一，阔叶树下，3 150 m, 2001-08-25，以上标本均由陈军采集；2 头 (No. 10，玻片)，西藏色季拉山，冷杉树干上苔藓，1997-09-28，SOLHOY Torstein、沈静、徐汝梅采集；2 头 (玻片)，甘肃卓尼大峪，2 600 m, 1990-09-04。

**词源**：新种种名以陕西师范大学生命科学学院郑哲民教授姓氏命名，以示对他在昆虫系统学研究领域中做出的贡献的敬意。